

## Seizing Opportunities: The Transformation of Red Onion Farmer Groups Towards Business Diversification in Probolinggo Regency

Adip Wahyudi<sup>1</sup>, Melati Julia Rahma<sup>2</sup>, I Komang Astina<sup>3</sup>, Feri Fahrian Maulana<sup>4</sup>, Dynda Prista<sup>5</sup>, Wanda Azizah Ramadhan<sup>6</sup>, Ibnu Abdillah Alawy<sup>7</sup>

<sup>1,2,6,7</sup> Department Geography, Faculty of Social Sciences, Universitas Negeri Malang, Malang, 65111, Indonesia

<sup>3</sup> Tourism Study Program, Faculty of Social Sciences, Universitas Negeri Malang, Malang, 65111, Indonesia

<sup>4</sup> Environmental Resource Management and Development, Graduate School, Universitas Brawijaya, Malang, 65111, Indonesia,

correspond\_author\_email: [adip.wahyudi.fis@um.ac.id](mailto:adip.wahyudi.fis@um.ac.id)

### Abstract

Probolinggo Regency is one of the centers of shallot production in East Java, but farmers in this region still face the challenge of low added value due to their dependence on the sale of fresh products. This community service activity aims to empower farmer groups through training in the diversification of processed shallot products in order to increase sales value and economic independence. The article was written using a qualitative approach with four main stages: socialization and mapping of farmer groups, practical training in making fried onions, onion oil, and shallot powder, business assistance, and evaluation and monitoring. The results of the activity showed a significant increase in the technical skills, managerial understanding, and entrepreneurial motivation of the participants. The processed products have potential in local and digital markets and encourage the formation of community-based micro-business units. The evaluation results show an increase in participants' knowledge and skills. This activity proves that practice-based training and intensive mentoring can be effective strategies in empowering farmers and developing the local economy. This model has the potential to be replicated in other regions with similar characteristics.

Keywords: Farmer Empowerment, Shallots, Product Diversification, Practical Training, Local Economy.

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### 1. Introduction

Probolinggo Regency, as one of the largest centers of shallot production in Indonesia, has significant economic potential [1]. Located on the northern coast of East Java, this region enjoys a dry tropical climate that is ideal for shallot cultivation, particularly in the subdistricts of Dringu, Sumberasih, and Wonomerto. However, specific data on shallot harvest area and production in 2025 is not currently available from reliable sources.

Farmer groups in this region play a central role in the shallot production chain. They are involved not only in cultivation, but also in building social networks that connect the agricultural sector with community life. Many farmer groups have formed cooperatives and participate in community institutions such as Village-Owned Enterprises (BUMDes) to gain access to production facilities and training [2]. However, there are

still challenges in utilizing the processing potential that could increase the added value of these products.

The potential for processing shallots into derivative products, such as fried shallots, shallot oil, and shallot powder, has not been optimally utilized. Research shows that processing agricultural products into derivative products is an effective strategy for improving farmers' welfare [3]. Processing products can extend their shelf life and increase their selling value, enabling farmers to earn higher profits and reduce the risk of losses due to market price fluctuations [4].

Based on field observations in Probolinggo, shallot farmers face serious challenges, particularly in relation to their dependence on selling fresh produce. Direct sales to markets often cause shallot prices to plummet, especially during the harvest season, which can result in significant losses for farmers [5]. Access to simple but effective post-harvest processing technology and knowledge about product diversification is also still

limited [6]. Another obstacle is limited access to capital and marketing networks, which means that many farmers are not yet connected to digital platforms or wider distribution channels [7]. Although farmer groups exist in this region, their role is often limited to the distribution of production inputs, and community-based enterprise development still needs to be improved. To address this issue, it is important for stakeholders to implement comprehensive interventions, including technical training, business assistance, and institutional strengthening [8]. Community-based empowerment is expected to facilitate farmers' transformation into independent and innovative economic actors.

Product diversification is an important strategy in increasing the added value of agricultural commodities, and the potential for processing shallots into various products still needs to be optimized. The implementation of community empowerment programs facilitated by the government and universities is very important to help farmers expand their capabilities. Collaboration between higher education institutions and farmer groups can create a transfer of knowledge that is beneficial for the development of community-based micro-enterprises. In addition, product diversification training is also important to create a strong entrepreneurial narrative at the village level, especially with the increasing market demand for hygienic processed products with local identity [9]. Therefore, this service aims to improve economic aspects, but also open up opportunities for farmer groups in Probolinggo. Through this empowerment, farmers in Probolinggo Regency can increase their economic independence and make a more significant contribution to the local economy through the verification of shallot products.

## 2. Methods

The community service activities were carried out in Tegal Rejo Village, Dringu District, Probolinggo Regency, from October to November 2025. The community service was conducted through four main stages, namely: participatory counseling, practice-based technical training, micro-business assistance, and evaluation and monitoring based on performance indicators. Each stage was designed to produce qualitative data that could be analyzed thematically and narratively.

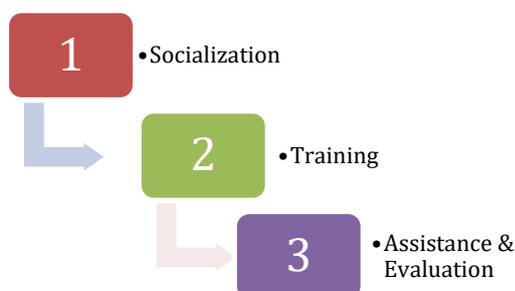


Figure 1. Service Flow

### 2.1 1. Socialization and Mapping of Farmer Groups as Prospective Participants

The activity began with a socialization program for village heads in three shallot-producing areas in Probolinggo Regency, namely Tegalrejo Village, Curahsawo Village, and Watuwungkuk Village. The session focused on the importance of product diversification as a strategy to increase the added value of shallots. This was done using a participatory approach, where farmer group members were invited to discuss the challenges they face in marketing their products and the potential for processed products that could be produced. The session also included presentations based on data and studies showing the economic and social benefits of diversification.

### 2.2 2. Practical Training: Making Processed Shallot Products

After the information session, the next phase is practical training. In this session, participants will learn how to process shallots into derivative products such as fried shallots, shallot paste, and shallot chips. The training method emphasizes practice-based learning so that farmers acquire skills that can be directly applied in their businesses [10]. This includes learning packaging techniques to increase the attractiveness of products in the market.

Practical training was designed as a core component of this community service activity, with the aim of transferring technical skills to farmer groups through an experiential learning approach. The training was conducted intensively over three days and focused on the production of three types of processed shallot products, namely fried shallots, shallot oil, and shallot powder.

Each training session begins with a technical demonstration by the facilitator, followed by hands-on practice by participants in groups. The training process is designed so that participants can experience firsthand all stages of production, from raw material preparation and processing to packaging. This approach allows participants to understand techniques in context and internalize skills through direct experience.

The training materials are organized as follows:

- **Fried Onion Production:** Participants are trained in uniform cutting techniques, soaking to reduce water content, frying at a controlled temperature ( $\pm 120\text{--}130^\circ\text{C}$ ), and draining and packaging techniques. The training also includes discussions on quality standards and consumer preferences regarding product texture and color.
- **Garlic Oil Production:** Training covers the process of infusing garlic into vegetable oil at low temperatures, filtering techniques, and packaging in food-grade containers. Participants are introduced to the principles of equipment sanitation

and aroma control so that the product is competitive in the culinary market.

- Making Red Onion Powder: Participants are trained in the drying process using a low-temperature oven ( $\pm 60^{\circ}\text{C}$ ), fine grinding, and packaging using aluminum foil sachets. The material also covers the introduction of natural binding agents and storage techniques to maintain product quality.

During the training, simple equipment that is easily accessible to farmers was used, such as manual slicers, gas stoves, oil spinners, electric ovens, and blenders. These tools were chosen so that the skills learned could be immediately applied on a household or group scale without relying on expensive technology. To support the learning process, participants were given training modules, worksheets, and self-assessment guides. In addition, facilitators conducted participatory observation and narrative recording to document the dynamics of the training, participant interactions, and challenges that arose during practice.

### 2.3. Business Companion

After the training, regular mentoring is provided to farmer groups to assist them in implementing the techniques they have learned. This mentoring aims to ensure that farmers can manage their processed products well and increase their sales through digital marketing or by establishing partnerships with local retailers [11]. This is important considering that limited market access is often a factor that hinders farmers' profits.

### 2.4. Evaluation dan Monitoring

Evaluation and monitoring to identify the impact of this intervention on increasing the income and skills of farmer groups. Indicators to be used include an increase in the number of processed products marketed, additional income from the sale of processed products, and changes in farmers' attitudes towards business diversification.

## 3. Results and Discussions

The implementation of community service activities produced a number of findings that showed significant changes in the technical, managerial, and entrepreneurial attitudes of the shallot farmer group in Probolinggo Regency. The results were analyzed qualitatively based on field observations, process documentation, and participant reflections during the activities.

### 3.1 1. Socialization and Mapping of Farmer Groups as Prospective Participants

The initial stage of the activity began with the dissemination of information about the program to village officials and farmer groups in the target areas.

This process not only served to introduce the program, but also as a means of social mapping and identifying the readiness of the groups. Through focus group discussions (FGDs), information was obtained regarding the organizational structure of the groups, their business experiences, and the challenges they faced in processing and marketing shallots.



Figure 2. Joint Socialization with Farmer Groups

The mapping results show that most farmer groups do not yet have experience in processing derivative products, but they are highly enthusiastic about the training offered. This activity also succeeded in building initial commitment and a sense of ownership towards the program, which is an important foundation for the success of the next stage.

### 3.2 2. Practical Training: Making Processed Shallot Products

The technical training was held over three days and focused on three types of processed products: fried onions, onion oil, and red onion powder. Each session began with a demonstration by the facilitator, followed by hands-on practice by participants in groups. The technical training was held over three days and focused on three types of processed products: fried onions, onion oil, and red onion powder. Each session began with a demonstration by the facilitator, followed by hands-on practice by participants in groups. As shown in Figures 3 and 4.



Figures 3 and 4. Product Verification Training

- Making Fried Onions: Participants learned uniform cutting techniques, soaking to reduce sap, frying at controlled temperatures, and draining and

packaging techniques. The results showed that participants were able to produce fried onions with a crispy texture and attractive color.



Figure 5. Fried onions

- **Garlic Oil Production:** This training introduces the technique of infusing garlic into vegetable oil. Participants learn to regulate the temperature so that the distinctive aroma of garlic is preserved without damaging the quality of the oil. The resulting product has a strong aroma and is packaged in food-grade plastic bottles.



Figure 6. Garlic Oil

- **Production of Red Onion Powder:** Participants are trained in the process of drying using a low-temperature oven, fine grinding, and packaging in aluminum foil sachets. This product is introduced as an innovative instant seasoning with new market potential.



Figure 7. Red onion powder

In general, this training improved participants' technical skills and broadened their knowledge of the economic potential of processed products. Participants showed increased confidence and interest in developing their businesses independently and collectively.

### 3.3 Initial Assistance in Starting a Business

After the training, intensive mentoring was conducted for eight weeks to ensure the sustainability of practices and strengthen business capacity. Mentoring was carried out through field visits, online consultations, and micro-business clinics.

During the mentoring, farmer groups were guided in:

- Develop a simple business plan.
- Calculate production costs and determine selling prices.
- Create product labels and promotional strategies.
- Access local and digital markets through social media.

Several groups began independently reproducing processed products and selling them in their local communities. The assistance also encouraged the formation of a more organized internal work structure, such as the division of production tasks, financial record keeping, and raw material stock management.

### 3.3 Evaluation dan Monitoring

The evaluation was conducted through activity reviews, field observations, and semi-structured interviews. The evaluation results showed a significant improvement in the participants' knowledge and skills. The post-test results for technical knowledge and skills increased to 78.07%, up from 54% before the training. This is illustrated in Figure 8.

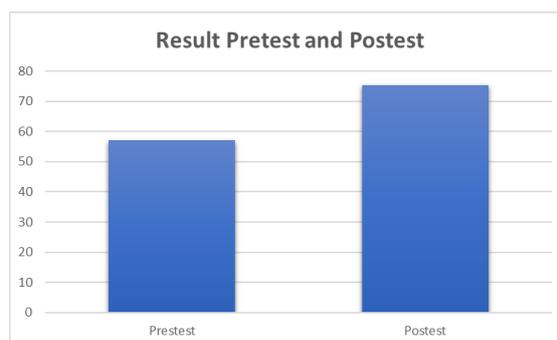


Figure 8. Pretest and Posttest Results

Other indicators of success include:

- Availability of three types of processed products ready for marketing.
- Increased income from sales of processed products compared to fresh products.
- Increased participation of group members in joint business activities.
- Establishment of an initial marketing network through social media and local partners.



Figure 9. Evaluation of the Mentoring Program

Monitoring in Figure 9 also noted challenges such as limited production tools and the need for further training in business management. However, in general, this activity succeeded in building a strong foundation for the development of community-based micro-enterprises. Based on the results of the shallot product diversification activity in Probolinggo District, shallot products such as fried shallots, shallot oil, and shallot powder were produced. The diversification of these products had five impacts on farmer groups, namely:

a. Sustainable improvement of processed products

The training provided to farmer groups has successfully produced several processed products, including fried onions, onion paste, and attractively packaged onion chips. These products were produced by applying the processing techniques taught during the training, which have been proven effective in improving product quality and market appeal [12]. For example, the results show that the selling price of fried onions can increase to between Rp80,000 and Rp100,000 per kilogram, while raw red onions only sell for around Rp10,000 to Rp20,000 per kilogram. This shows that there is the potential for an increase in economic value of up to 400%-500% through processed products.

b. Peningkatan Pengetahuan dan Keterampilan

During the outreach activities, farmers' knowledge and skills were evaluated before and after the training. The results showed that participants experienced a significant increase in their knowledge and skills related to shallot processing. The post-test assessment showed that knowledge of processing and marketing techniques increased by 78.07% and skills in applying new techniques increased by [13].

c. Dampak ekonomi

This program not only improves technical knowledge, but also has a positive impact on the economic conditions of farmer groups. The average income earned by farmers from the sale of processed products has increased, with many farmers reporting a significant increase in income compared to when they only sold fresh shallots [14]. Farmers' awareness of the

potential of processed products and how to market products effectively using digital platforms and social media has also increased, making it easier for them to reach a wider market [15].

d. Managerial and Marketing Skills

In addition to technical aspects of production, the training also covers basic management and digital marketing strategy modules. These skills are essential to ensure the sustainability of the businesses established by farmer groups. According to Ulma, training that covers marketing strategies enables farmers to actively sell their products online and improve their managerial skills in running community-based micro-enterprises [16].

e. Business Sustainability and Economic Independence

By improving their skills and knowledge, farmer groups are expected to become more economically independent. Increasing farmers' capacity in business management, especially in small communities, shows that product diversification training according to Azvika helps them not only in the short term, but also in the long term to adapt to market changes and better manage risks [17].

#### 4. Conclusions

The training program for shallot farmers in Probolinggo Regency has proven to be a highly effective strategic intervention in providing real solutions for farmers' welfare. The main focus of this breakthrough is the transfer of post-harvest processing technology into high value-added products, namely packaged fried shallots, onion powder, and shallot oil. Until now, the biggest challenge for farmers has not been cultivation, but rather their dependence on selling raw bulbs, which is highly vulnerable to detrimental market price fluctuations. Through training in the manufacture of these three product variants, farmer groups now have a promising alternative for maintaining income stability. However, before reaching this stage, it was identified that the fundamental obstacle was a lack of business literacy. The lack of valid information regarding the significant profit potential of derivative products such as onion oil and onion powder was a fatal knowledge gap. This lack of awareness caused farmers to previously let economic opportunities pass them by, unaware that their commodities had a much broader market potential in the culinary and industrial sectors if processed correctly.

In addition to technical challenges, the key to the success of this program lies in its ability to break down psychological barriers through the power of solidarity. Fear of failure in marketing new products, such as concerns about whether their onion powder will sell, often paralyzes individual initiative. However, the solidarity within the farmer group creates a safe ecosystem, where business risks are shared and

therefore feel lighter. This solidarity transforms doubt into collective courage to take steps toward innovation opportunities that had previously been kept hidden. Farmers are now more confident in producing and marketing their onion products to a wider market. The success of this transformation in Probolinggo demonstrates that empowerment training based on concrete product diversification and community strengthening has great potential for marketing. This not only strengthens the local economy through agricultural downstreaming but also makes a vital contribution to reinforcing the role of agriculture in the national economy.

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**Author Contributions Statement**

Name of Author	C	M	So	Va	Fo	I	R	D	W
Adip Wahyudi	✓	✓	✓	✓	✓	✓		✓	✓
Melati Julia		✓				✓		✓	✓
I Komang Astina	✓		✓	✓				✓	
Feri Fahrhan Maulana	✓	✓		✓	✓	✓	✓	✓	

Dynda Prista	✓	✓			✓				✓
Wanda Azizah Ramadhan							✓	✓	
Ibnu Abdillah Alawy				✓				✓	

**Conflict of Interest Statement**

Authors state no conflict of interest.

**Data Availability**

Data availability is not applicable to this paper as no new data were created or analyzed in this study.

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**Biographies of Authors**

	<p>Adip Wahyudi     is a Dr. Lecturer in the Department of Geography, State University of Malang who teaches geography courses. He is located at Jalan Moch Juki 78 RT.06 RW.03 Mulyorejo - Sukun - Malang City. He completed his undergraduate education in 2009 and his master's degree in 2012 at State University of Malang, before earning his doctorate from Gadjah Mada University in 2020. With extensive academic experience, his expertise is focused on Social Geography and Geography Education. Apart from being active in teaching, he also plays an important role in developing teaching materials that are in line with current curriculum needs. He has made significant contributions to research related to geography, as well as focusing on the utilization of digital technology in geography learning. His approach to digital technology integration aims to prepare students to face the educational challenges of an ever-evolving digitalization era. He can be contacted for academic inquiries or research collaborations via his official email <a href="mailto:adip.wahyudi.fis@um.ac.id">adip.wahyudi.fis@um.ac.id</a>.</p>		<p>Prof. I Komang Astina, M.S., Ph.D.,   is a Professor and senior civil servant residing in Jembrana, Bali, who currently serves as the Acting Head of the Bachelor of Tourism Study Program at the Faculty of Social Sciences. While his academic homebase is within the Doctoral Program for Geography Education, he holds an extensive educational portfolio that includes a bachelor's degree from IKIP Malang (1981), a master's degree from Universitas Gadjah Mada (1988), and a doctorate from Universiti Utara Malaysia (2014). He can be contacted for official matters via his institutional email at <a href="mailto:komang.astina.fis@um.ac.id">komang.astina.fis@um.ac.id</a>.</p>
	<p><b>Melati Julia Rahma</b>     is an academic serving as an Assistant Professor (Asisten Ahli) within the Bachelor of Geography Education program at the Faculty of Social Sciences. Based in Lowokwaru, Malang, she completed both her undergraduate (2019) and master's (2022) degrees at Universitas Brawijaya. For professional inquiries, she can be contacted via her official institutional email <a href="mailto:melatijuliarahma.fis@um.ac.id">melatijuliarahma.fis@um.ac.id</a>.</p>		<p>Feri Fahrian Maulana   is a S.Pd (Bachelor of Education in Geography). He graduated with a bachelor's degree in Geography Education from State University of Malang in 2020. After graduating, he devoted himself as a teacher of Informatics and Geography at Al Izzah International Islamic Boarding School. He lives in Kalangan RT 002 RW 001, Wiyurejo Village, Pujon, Malang. His expertise is focused on the development of technology and environmental-based education, with special attention to the application of technology in geography and informatics learning. He is also active in research that focuses on spatial analysis, field research, and mapping to understand more deeply about economic and environmental changes in various regions. With a strong understanding of technology and the environment, he is committed to preparing young generations who are ready to face global challenges in the digital era. He is often involved in research projects that aim to provide insights into the impact of environmental and economic changes on society. For further communication, he can be contacted via personal email at <a href="mailto:ferifahma21@gmail.com">ferifahma21@gmail.com</a>.</p>

	<p><b>Dynda Prista</b> is a master's student in Management at Malang State University who has an interest in Marketing Management.</p>		<p><b>Ibnu Abdillah Alawy</b> is an entrepreneur in the field of digital marketing. He is highly skilled in poster design, video production, and live services. Digital marketing</p>
	<p><b>Wanda Azizah Ramadhan</b> is an undergraduate student majoring in Geography Education who has an interest in the field of Education.</p>		